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(54) TORQUE DETECTOR OF SHAFT COUPLING

(57) Abstract:

PURPOSE: To detect the transmission torque of a shaft coupling during the rotation at low cost by a simple apparatus, by twisting the elastomer of the shaft coupling with the rotation of an input shaft and detecting the change in the quantity of light of a light passing part generated by the shift between the rotary bodies on the input and output sides of the shaft coupling.

CONSTITUTION: A shaft coupling 1 is constituted by connecting an input flange 2 and an output flange 3 by an elastomer 4 such as rubber. The elastomer 4 is fixed to the flanges 2, 3 in a state respectively tightened from the outside by a screw 7 through pressure rings 5, 6. When an input shaft 8 is rotated, the twist of the elastomer 4 of the shaft coupling 1 is little when the load on the side of an output shaft is small but becomes large when said load becomes large. The twist angle thereof is proportional to the magnitude of transmission torque. An annular rotary bodies 10, 11 provided with a plurality of slit like light transmitting parts 12 at an equal interval are formed to the peripheral edges of the rings 5, 6. When the input shaft 8 rotates and the elastomer 4 is twisted by the torque applied to the shaft coupling to shift the rotary bodies 10, 11, the quantities of the light of the light passing parts 12 change and, therefore, this change in the quantities of light is received and converted to an electric pulse to detect transmission torque.